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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/498,703 | 02/07/2000 | Jahja I. Trisnadi | SLM-04300 | 9200 |

28960 7590 02/28/2003

HAVERSTOCK & OWENS LLP
162 NORTH WOLFE ROAD
SUNNYVALE, CA 94086

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| EXAMINER |
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RODRIGUEZ, ARMANDO

| ART UNIT | PAPER NUMBER |
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2828

DATE MAILED: 02/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.



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| | | |
|------------------------------|-------------------------------|--------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 09/498,703 | TRISNADI, JAHJA I. |
| | Examiner Armando Rodriguez | Art Unit 2828 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 28 October 2002.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-68 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) 19-62 is/are allowed.

6) Claim(s) 1-10, 12-18, 63-65 and 67 is/are rejected.

7) Claim(s) 11, 60 and 68 is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Paul JP
PAUL IP
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All—b) Some*—c) None of:

- Certified copies of the priority documents have been received.
- Certified copies of the priority documents have been received in Application No. _____.
- Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) Notice of References Cited (PTO-892) ✓

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 11 ✓

4) Interview Summary (PTO-413) Paper No(s) _____.

5) Notice of Informal Patent Application (PTO-152)

6) Other: _____

DETAILED ACTION

Response to Arguments

Applicant's arguments filed October 30, 2002 have been fully considered but they are not persuasive, regarding claims 1-10,12-18,63-65 and 67. The Scully (PN 4,511,220) reference discloses a structural arrangement for converting a polarized laser beam into two coincident, orthogonally polarized beams having an optical path difference which exceeds the coherence length to obtain speckle reduction. The difference in structural arrangement between applicant's claimed invention and the Scully device is considered by the examiner as a design preference since both devices provide orthogonally polarized laser beams having a path difference.

Regarding applicant's argument pertaining to the Scully reference teaching away from using a depolarization screen is based on the probability curves, which represent the intensity of the beams with regard to the speckles and nulls of a polarized and an unpolarized beam. These curves and the stated conclusion by Scully of column 2 do not imply that a polarization screen is unnecessary. Applicant's attention is directed to the same column 2 lines 61-65 where it is disclosed how to obtain the nulls of probability curve (1) based on equation (1) which is to convert the polarized beam into two orthogonally polarized beams to obtain speckle reduction.

Regarding the Goodman (Some fundamental properties of speckle) reference on page 1147, second column, fourth paragraph discloses that a depolarization screen reflecting a beam having two orthogonally polarized components will reduce the speckle.

Regarding applicant's concern with the combination of these references the examiner recognizes that references cannot be arbitrarily combined and that there must be some reason why one skilled in the art would be motivated to make the proposed combination of primary and secondary references. The test for combining references is what the combination of disclosures taken as a whole would suggest to one of ordinary skill in the art, furthermore section 103 requires us to presume full knowledge by the inventor of the prior art in the field of his endeavor. Thereby, both references disclose reduction of speckle one by an optical arrangement and the other by a depolarization screen as such the combination as whole would suggest the claimed invention and would be obvious to a person having ordinary skills in this art.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-10,12-18,63-66 and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scully (PN 4,511,220) in view of applicant's admitted prior art Goodman (Some fundamental properties of speckle).

Regarding claims 1,3,5,7,8,12,16 and 63.

Scully illustrates in figure 2 a laser system arrangement to eliminate speckle, the arrangement having a half waveplate (22), a polarizing beam splitter (32) which divides the laser beam from laser (100) into two beams (210) and beam (220). Beam (220) is

reflected by beam splitter (32) and guided through a path difference via reflecting right angle prism (40), while beam (210) is transmitted through beam splitter (32). Both beams are recombined at polarizing beam splitter (44).

Scully does not disclose which particular target the output beam is illuminated on or a depolarizing screen.

On page 1147, second column, fourth paragraph Goodman discloses that a depolarization screen reflecting a beam having two orthogonally polarized components will reduce the speckle.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to combine the teachings of Goodman of a depolarization screen with the laser system arrangement of Scully because the laser system of Scully would provide the depolarization screen with a two orthogonally polarized beam component, which will result in the reduction of speckle pattern.

Regarding the limitation of the coherence length, Scully discloses in the abstract, in column 2 lines 64-68 and in column 3 lines 1-5 that exceeding the known coherence length will not produce speckle fields. Therefore, discovering an optimum value or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Regarding claim 2 and 67.

Scully does not disclose a plurality of mirrors as the light guide but discloses a reflecting right angle mirror as the reflecting guide.

It would have been obvious to a person having ordinary skill in the art to replace the reflecting right angle prism with mirrors because both the reflecting right angle prism

and the mirrors provide the same function, which is to provide a different path for producing a two orthogonal light beam, thereby reducing the speckle pattern.

Regarding claims 4,6,9,10,17 and 18.

On page 1147, second column, fourth paragraph Goodman discloses that a depolarization screen reflecting a beam having two orthogonally polarized components will reduce the speckle.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to use a depolarizing screen because it would reduce the speckle pattern as disclosed by Goodman.

Regarding claims 13-15, 64, and 65.

Scully illustrates in figure 2 a polarized beam splitter dividing beam (200) into two beams (210) and (220), where both beams are recombined by polarizing beam splitter (44).

It would be obvious to a person of ordinary skill in the art to divide and recombine using one beam splitter because the teaching of dividing and recombining to produce a two orthogonal light beam for reducing speckle pattern via beam splitters, is known as disclosed by Scully. Furthermore, the number of beam splitters is not critical to the invention but the function of splitting and obtaining an orthogonally polarized beam having a path difference is critical because it would reduce speckle pattern as disclosed by Scully.

Allowable Subject Matter

Claims 11, ~~66~~ and 68 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

None of the prior arts alone or in combination disclose the structural combination of dependent claims 11, ~~66~~ and 68 along with limitations of the base claim and any intervening claims having fiber optic light guide, multiplayer dielectric, a birefringent crystal and half waveplate mechanically rotated.

Claims 19-62 are allowed.

Regarding claims 19-40,

None of the prior arts alone or in combination discloses the claimed laser system to reduce laser speckle having the structural combination of independent claims 19 and 34 in particular the limitation of oscillating the optical path length by at least a half wavelength of the first polarized laser output.

Regarding claims 41-43,

None of the prior arts alone or in combination discloses the claimed laser system to reduce laser speckle having the method of independent claim 41 in particular the step of oscillating the optical path length by at least a half wavelength of the first polarized laser output.

Regarding claims 44-46 and 47-49,

None of the prior arts alone or in combination discloses the claimed laser system for reducing laser speckle having the structural combination and method of independent

claims 44 and 47, in particular having the means for switching between a first and second optical path length, where the path lengths have a difference of about an odd multiple of a half wavelength of the first polarized laser output, means to produce a fifth laser output and a scanning mirror coupled to the fifth laser output to create a line illumination.

Regarding claims 50-58,

None of the prior arts alone or in combination discloses the claimed laser system for reducing laser speckle having the structural combination and method of independent claims 50 and 56, in particular having the means for combining a first laser output and a second laser output, as disclosed within the specifications, where the first laser output is incoherent with the second laser output and the first and second laser outputs have orthogonal polarization and from a third laser output which is coupled to depolarization screen.

Regarding claims 59-62,

None of the prior arts alone or in combination discloses the claimed laser system for reducing laser speckle having the structural combination and method of independent claims 59 and 62, in particular having the means for rotating the polarization of laser output, as disclosed within the specifications, where a rotation polarization is formed and driven with a rotation frequency and a depolarization screen is coupled to the laser output, where the rotation frequency is sufficient to reduce laser speckle.

Conclusion

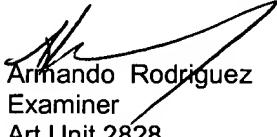
THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Armando Rodriguez whose telephone number is (703) 308-6218. The examiner can normally be reached on 10-hour day / M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7721 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-4881.


Armando Rodriguez
Examiner
Art Unit 2828


Paul Ip
Supervisor
Art Unit 2828

AR/PI
February 6, 2003